



ALUMINUM RAIL - TUBE TYPE FIELD SECTION 714

714.1 SCOPE. This section complements instructions contained in the Construction Manual, Sec 700, for the inspection of cast aluminum rail posts and extruded aluminum alloy tubes for railings on bridges, roadway medians, and retaining walls.

714.2 APPARATUS.

- (a) Magnetic gauge, reading range of 0 to 40 mils [$01000\ \mu\text{m}$].
- (b) Rule with suitable graduations to accurately measure the material to be inspected.

714.3 PROCEDURE. Materials personnel will not normally be expected to perform inspection of bridge rail items for construction projects. Posts are generally inspected at the fabricating plant by Bridge personnel and tubes are generally inspected by either Bridge or Construction personnel. District Operations personnel are to perform inspection of materials purchased under a Department purchase order and to inspect or assist on construction items if requested by the district Operations personnel.

714.3.1 Aluminum alloy extruded tubes, bars, shims, and end caps are to be accepted on the basis of a certified mill or foundry test report in accordance with Specification Sec 714 and examination of the finished items.

714.3.2 High strength aluminum posts for construction projects will be inspected at the fabrication plant by Bridge personnel. Occasionally, ornamental aluminum posts for construction projects will not be inspected at the fabrication plant prior to arrival on the project. In these cases, the fabricator may be allowed to submit one sample post accompanied by two copies of the certified mill and foundry test report to the State Bridge Engineer, who will then accept or reject the post as a standard. If accepted as a standard, the State Bridge Engineer, will forward the sample post to the district Operations Engineer and will issue a release for shipment to the fabricator with a copy to the district Operations Engineer. The sample post will be tagged with identification information by personnel of Bridge.

714.3.2.1 The field inspection for ornamental posts shipped to projects without inspection at the fabricating plant by Bridge shall consist of comparing the posts offered for inspections to the standard post and visually examining the posts for fins, burrs, cracks, bends, sponging, and general workmanship. The heat number stamped on the posts shall be compared with those shown on the release for shipment form. Posts of the same heat which are otherwise acceptable may then be accepted for use.

714.3.3 Aluminum posts purchased under a Department purchase order shall be inspected in the District in accordance with the bid request issued by the General Service Director.

714.3.3.1 The district Operations Engineer shall obtain the certified mill and foundry test reports for ornamental posts, and in the case where high strength posts are furnished, the certified foundry or testing laboratory report and the certification of X-ray inspection shall be obtained. These certifications and reports shall be carefully reviewed and checked for compliance with the requirements set forth in the bid request.

714.3.3.2 The posts shall be inspected for dimensions in accordance with the drawings attached to the bid request. A visual inspection shall be made of the posts for fins, burrs, cracks, bends, sponging, and general workmanship.



714.3.4 Steel bolts and nuts, stainless steel screws, set screws, and washers may be accepted by manufacturers' certification of compliance. Zinc coating of steel bolts and nuts is to be checked by magnetic gauge in the same manner as described in [Field Sec 1040](#) of this Manual.

714.4 SAMPLE RECORD. The sample record shall be completed in SiteManager, as described in Automation Sec 3510, and shall indicate acceptance, qualified acceptance, or rejection.

714.4.1 Aluminum alloy extruded tubes, bars, shims, and caps; and cast aluminum posts are to be reported through SiteManager.

A copy of the certification for all items, except posts, is to be retained by district Operations.

714.4.2 If bolts, nuts, screws, etc., are inspected and reported at the same time as rail or posts, they may be included on the same report as described in paragraph 74.4.1 of this Section. In such case, a copy of the manufacturer's certification shall be retained by district Operations. If these items are inspected separately from rail or posts, galvanized items shall be reported through SiteManager.

714.4.3 Bridge items, including posts purchased under a Department purchase order, shall be reported through SiteManager. A copy of the certification shall be retained by the district Operations.

